

## REMARKS

### The Office Action:

Claims 8-11, 18 and 19 are pending in the present application. Applicants are amending herewith Claims 8, 9, 11 and 19. Claims 8-11, 18 and 19 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 8-11, 18 and 19 were rejected under 35 U.S.C. § 102(b) as being completely anticipated and unpatentable in view of the patent to Brodnyan et al. (U.S. Patent No. 4,356,229). Claims 8-11, 18 and 19 were also rejected under 35 U.S.C. § 103(a) as being obvious and unpatentable over the patent to Bjorkquist et al. (U.S. Patent No. 6,127,593) in view of the patent to Brodnyan et al. Applicants are amending herewith Claims 8, 9, 11 and 19. Support for these amendments is found throughout the application. Applicants respectfully traverse the foregoing rejections.

### Rejection Under 35 U.S.C. § 112:

Claims 8-11, 18 and 19 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The rejection states that all of the claims contain the term “triggerable” and that the term “triggerable” does not describe what makes a polymer “triggerable” which renders the claim indefinite. The rejection further states that the term “triggerable” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. Applicants respectfully disagree.

First, the term “triggerable” is defined by the specification. At page 5, lines 21-27, the present specification states as follows:

The ion-sensitive polymer formulations of the present invention have a “trigger property,” such that the polymers are insoluble

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in a wetting composition comprising an insolubilizing agent of a particular type and concentration, such as monovalent salt solutions at concentrations above about 2%, but are soluble when diluted with water including hard water with up to 200 ppm (parts per million) calcium and magnesium ions.

Thus, from the foregoing, a person skilled in the art would readily understand that a “triggerable” cationic polymer would be a polymer having a net cationic charge and being insoluble in a wetting composition comprising an insolubilizing agent, but is soluble in water when diluted with water, including hard water with up to 200 ppm (parts per million) calcium and magnesium ions. The specification also discloses how to make and use several different “triggerable” cationic polymers. Accordingly, Applicants submit that the term “triggerable” is not indefinite when construed in accordance with the teaching of the specification.

Additionally, applicants are amending Claims 8, 9, 11 and 19 to provide that the triggerable cationic copolymer contains quaternary ammonium groups and that the cationic copolymer is insoluble in a wetting solution, but is soluble in tap water. Applicants submit that these amendments make even more clear what is being claimed as the present invention. Accordingly, applicants submit that Claims 8-11, 18 and 19 are not indefinite and that the rejection under 35 U.S.C. § 112, second paragraph, should be withdrawn.

**Rejection Under 35 U.S.C. § 102:**

Claims 8-11, 18 and 19 were rejected under 35 U.S.C. § 102(b) as being completely anticipated and unpatentable in view of the patent to Brodnyan et al. The rejection states that Brodnyan et al. teaches a nonwoven product comprising a binder composition that is hard or soft. The rejection further states that Brodnyan et al. discloses that it was known to add components, such as butyl acrylate, 2-ethylhexyl acrylate, acrylic

acid, insolubilizing agents and a salt to nonwoven fabrics. The rejection concludes that the composition of Brodnyan et al. must be equivalent to the presently claimed composition. Applicants respectfully disagree.

Brodnyan et al. discloses a nonwoven fabric including a binder composition that is water insoluble to provide wet strength. The binder is made as an emulsion and is a copolymer of 1-8% by weight of a carboxylic acid, 50-75% by weight of a C<sub>4</sub> to C<sub>8</sub> alkyl acrylate or mix, and 20-49% by weight of MMA, Styrene, or  $\alpha$ -methyl styrene. The copolymer can be applied as a free acid or as a salt. If applied as a salt then the polymer will be anionic. Any amine functionality would be as a counter ion and not part of the polymer backbone. Thus, the polymer in Brodnyan et al. will either be anionic or, at best, neutral in charge. Accordingly, Brodnyan et al. does not disclose a cationic copolymer.

While the specification discloses individually, *inter alia*, the components n-butyl acrylate, 2-ethylhexyl acrylate, and acrylic acid, Brodnyan et al. does not disclose combining these monomers to form a copolymer. Moreover, Brodnyan et al. does not disclose an ion-sensitive polymer or a triggerable copolymer. Importantly, Brodnyan et al. does not disclose a cationic copolymer of any type, and does not disclose a polymer that is insoluble in a wetting solution but is soluble in tap water. Furthermore, Brodnyan et al. does not disclose a cationic copolymer that includes quaternary ammonium groups. Since Brodnyan et al. does not disclose the foregoing elements of the claims, applicants submit that Brodnyan et al. cannot anticipate the present claims. Therefore, applicants respectfully request that the rejection of Claims 8-11, 18 and 19 under 35 U.S.C. § 102(b) as being completely anticipated and unpatentable in view of the patent to Brodnyan et al. be withdrawn.

**Rejection Under 35 U.S.C. § 103(a):**

Claims 8-11, 18 and 19 were also rejected under 35 U.S.C. § 103(a) as being obvious and unpatentable over the patent to Bjorkquist et al. in view of the patent to Brodnyan et al. The rejection states that Bjorkquist et al. discloses paper products with wet strength comprising a cationic binder and a salt, such as sodium chloride. The rejection states that Bjorkquist et al. discloses using the same cations. The rejection concludes that it would be obvious to use the polymers disclosed in Brodnyan et al. as the binder in Bjorkquist et al. Applicants respectfully disagree.

Neither Bjorkquist et al. nor Brodnyan et al. disclose a cationic polymer containing quaternary ammonium groups. The disclosure of Brodnyan et al. is discussed above and is incorporated herein by reference. The polymers disclosed in Bjorkquist et al. are either "polyvinyl alcohol co-acetals" or homo and copolymers derived from acrylamide monomers. Bjorkquist et al. does not teach the use of cationic monomers in the synthesis of the above polymers. While Bjorkquist et al. does mention that the tertiary amines used in the polymers may become positively charged, he does not teach the specific use of quaternary amine-containing monomers.

Contrary to the contention of the patent examiner, Bjorkquist et al. does not disclose polymers using the same cations. As stated above, there is no disclosure in Bjorkquist et al. of a cationic polymer containing quaternary ammonium groups. Furthermore, since Bjorkquist et al. relates to cationic polymers and Brodnyan et al. does not, there would be no motivation to use the polymers disclosed by Brodnyan et al. in the binder of Bjorkquist et al. Additionally, since Bjorkquist et al. relates to ion sensitive polymers and Brodnyan et al. relates only to a water insoluble polymer, there would be no motivation to use the

polymers disclosed by Brodnyan et al. in the binder of Bjorkquist et al. More importantly, no combination of Bjorkquist et al. and Brodnyan et al. would produce a permanently charged cationic polymer or a cationic copolymer containing quaternary ammonium groups as presently claimed.

Applicants are amending herewith Claims 8, 9, 11 and 19 to specifically point out that the triggerable cationic copolymer contains quaternary ammonium groups. Applicants respectfully submit that the rejection of Claims 8-11, 18 and 19 as being obvious and unpatentable over the patent to Bjorkquist et al. in view of the patent to Brodnyan et al. is overcome by the present amendments. Accordingly, applicants request withdrawal of the present rejection.

#### New Claims:

Applicants are amending the claims herewith to add new Claims 22 and 23. Claim 22 is a dependent on Claim 8 and specifies that the cationic copolymer contains monomer units selected from acrylate or methacrylate. Applicants submit that Claim 22 is allowable over the art of record for the same reasons as stated above and incorporated herein by reference. Applicants further submit that Claim 22 is allowable over the patent to Bjorkquist et al. in view of the patent to Brodnyan et al. because Claim 22 specifies that the cationic copolymer contains monomer units selected from acrylate or methacrylate. Bjorkquist et al. discloses a polyvinyl alcohol co-acetal (PVAA). Bjorkquist et al. does not disclose a cationic copolymer containing monomer units selected from acrylate or methacrylate.

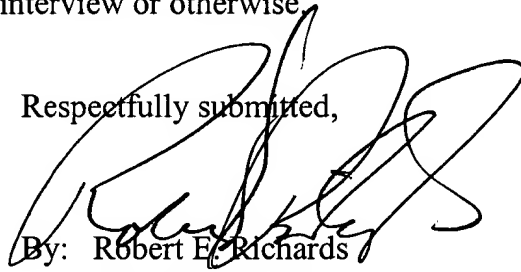
Claim 23 is directed to a nonwoven fabric comprising a fibrous material and a binder. The binder comprises a triggerable, permanently cationically charged copolymer that

retains its cationic charge independent of pH. Applicants submit that Claim 23 is patentable over the patent to Bjorkquist et al. in view of the patent to Brodnyan et al. because neither of those patents discloses a triggerable, permanently cationically charged copolymer that retains its cationic charge independent of pH.

**Conclusion:**

Applicants respectfully request reconsideration of the present application in view of the foregoing remarks. Such action is courteously solicited. Applicants further request that the Examiner call the undersigned counsel if allowance of the claims can be facilitated by examiner's amendment, telephone interview or otherwise.

Respectfully submitted,

  
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Version With Markings to Show Changes Made Under 37 C.F.R. 1.121(b and c)(1)(ii)

Please amend the specification and claims by deleting the bracketed word(s) and inserting the underlined word(s) as indicated.

In the Claims:

Please rewrite Claims 8, 9, 11 and 19 as follows:

8. (Amended) A nonwoven fabric comprising fibrous material and a binder material, said binder material comprising [the composition of Claim 1] a triggerable cationic copolymer containing quaternary ammonium groups, wherein said cationic copolymer is insoluble in a wetting solution containing at least about 0.5 weight percent of an insolublizing agent and said cationic copolymer is soluble in tap water.

9. (Amended) A fibrous substrate comprising:  
fibrous material; and  
a binder composition for binding said fibrous material into an integral web, said binder composition comprising a triggerable cationic [polymer] copolymer containing quaternary ammonium groups, wherein said cationic copolymer is insoluble in a wetting solution containing at least about 0.5 weight percent of an insolublizing agent and said cationic copolymer is soluble in tap water.

11. (Amended) A wet wipe comprising:  
a fibrous material;  
a binder composition for binding said fibrous material into an integral web, said binder composition comprising a triggerable cationic [polymer] copolymer containing quaternary ammonium groups; and  
said fibrous material being wetted by a wetting solution containing at least about 2 weight percent salt, wherein said triggerable cationic copolymer is insoluble in said wetting solution and said triggerable cationic copolymer is soluble in tap water.



19. (Amended) A wet wipe comprising:

a fibrous material;

a binder composition for binding said fibrous material into an integral web, said binder composition comprising a triggerable cationic [polymer] copolymer containing quaternary ammonium groups; and

said fibrous material being wetted by a wetting solution containing at least about 0.5 weight percent of an insolublizing agent, wherein said triggerable cationic copolymer is insoluble in said wetting solution and said triggerable cationic copolymer is soluble in tap water.